

AirCred: Ozone Emission Reduction Credits for Your Clean Cities AFVs at the Click of a Mouse

To assist the Department of Energy's Clean Cities coalitions in estimating the ozone precursor emission reduction credits earned by acquiring original equipment manufacture (OEM) alternative-fueled vehicles (AFVs), Argonne National Laboratory (ANL) has developed a GUI-based calculation model called *AirCred* (a working title subject to possible change). ANL wished to provide an easy and straightforward manner for the values of those credits to be summed together with Voluntary Mobile Source Emission Reduction Program (VMEP) credits due to other local voluntary strategies and programs earned pursuant to EPA's October 1997 guidance. *AirCred* is based on EPA's MOBILE model combined with emission test certification data for new OEM vehicles and their gasoline- or diesel-fueled counterparts. It starts with the MOBILE-computed emission factor (by vehicle type) appropriate to midsummer, ozone-season conditions in each Clean City (about 60 different values are available). The "clean gap" between AFV and conventional counterpart emissions of NMHC, CO, and NOx determines the magnitude of the g/mi. credit that can be taken for AFV driving in each Clean City, relative to MOBILE's emission rates. In the case of LDVs, credit is based on both (a) the entire chassis dynamometer-based Federal Test Procedure and (b) bag 1 [cold start] of the test only. For HDDVs (transit and school buses and medium-heavy trucks operating on natural gas), it derives from engine dynamometer certification data and thus does not include any cold start computation. Results are reported in tons per day and pounds per day; it is the user's responsibility to then multiply this value by the number of days in the ozone season to take the appropriate annual credit. (A multiplier equal to the number of days in the year is inappropriate because the emission factors applied reflect only warm season conditions.)

AirCred is written in Visual Basic for Windows™, a software package developed around the concept of presenting screens or forms to a user as a way of eliciting data input and providing output information based on that data. It is a direct form of object-oriented programming, with the user allowed to select multiple options through clicking on "radio-button" controls from each screen. *AirCred* has been designed to lead the user through a logical sequence of data entry using a mouse clicker and/or keyboard. It gives the option to print for future reference a hard copy of every input and output (results) screen and permits returning to any data input screen if a user discovers that he or she has made errors in data entry or wants to change the values of certain parameters. It seeks to be "user-friendly" in the sense that the user is informed in a straightforward manner what to do on each screen and at the end of the process provided a clearly understandable result. It is not "rocket science," just intended as a handy tool for busy people.

AirCred (in current version) computes actual credits for electric vehicles and for dedicated and dual-fueled natural gas LDVs, LDTs, and HDVs (i.e., transit buses and medium heavy duty natural gas vehicles replacing diesel-fueled school buses and Class 5 through 7 trucks) through the year 2000 ozone season. In its final implementation (MOD2, to be developed during FY00), it will add Class 8a and 8b local service vehicles and truck tractors as well as both propane and alcohol dedicated and dual (flex)-fueled vehicles and provide 24-hour and cold start credits through at least 2004. Addition of credits against Tier2-certified gasoline and diesel vehicles using MOBILE6 emission rates is also contemplated. The model will be updated at least annually as new certification data for AFVs are obtained.

Table 1 shows the complete list of Clean Cities and the 1999 AND 2000 values of their respective FTP-based MOBILE5b baseline emission factors (for LDGVs and LDGTs) for (a) the entire FUDS and (b) Bag 1 only, together with the emission control program assumptions for each Clean City.

How Clean Cities Coalitions Should Use this Model

AirCred is intended to open the door for coordinators and stakeholders from DOE's Clean Cities program to work more closely with state and regional air quality planners and officials who are laying the groundwork for revising and updating ozone precursor emission reduction strategies under new ozone SIP calls. The former will better appreciate how--and to what actual degree--their AFV acquisitions under EPACT-related programs contribute to cleaner air, just as the latter can benefit from the numerical estimates that *AirCred* provides them in summing up the emission benefits of their complete VMEP package for current and future years. Once *AirCred* becomes an EPA-accepted and approved tool, the values generated by the model can be submitted directly to air agencies and will obviate their having to devote extra time and effort to analyzing AFV credits. There will also be a uniform basis across all EPA regions for accepting (or rejecting) those credits.

Table 1. Baseline Emission Rates and Parameters by Case Number/Clean City

AirCred Case #	Clean City	1998/99 LDGV Baseline (g/mi)			1999/00 LDGV Baseline (g/mi)			1998/99 LDT2 Baseline (g/mi)			1999/00 LDT2 Baseline (g/mi)		
		NMHC	CO	NOx									
0	Albuquerque, NM	0.48	2.53	0.24	0.43	2.53	0.24	0.77	4.62	0.51	0.66	3.33	0.37
1	Ann Arbor, MI	0.49	2.60	0.25	0.44	2.60	0.25	0.75	4.73	0.52	0.74	4.59	0.50
2	Atlanta, GA	0.41	2.53	0.24	0.31	2.53	0.24	0.66	4.62	0.51	0.57	4.49	0.49
3	Austin, TX	0.48	2.53	0.24	0.43	2.53	0.24	0.74	4.62	0.51	0.72	4.49	0.49
4	Baltimore, MD	0.31	2.33	0.23	0.23	2.38	0.21	0.57	4.00	0.51	0.50	3.89	0.47
5	Boston, MA	0.31	2.33	0.23	0.23	2.38	0.21	0.57	4.00	0.51	0.50	3.89	0.47
6	Capital District, NY	0.49	3.45	0.27	0.37	3.65	0.29	0.78	4.87	0.53	0.67	4.62	0.50
7	Central Arkansas	0.53	3.65	0.29	0.48	3.65	0.29	0.78	4.75	0.53	0.76	4.62	0.51
8	Central Indiana Alliance	0.34	2.24	0.24	0.27	2.24	0.23	0.57	4.04	0.51	0.50	3.93	0.47
9	Central NY	0.49	3.45	0.27	0.37	3.65	0.29	0.78	4.87	0.53	0.67	4.62	0.50
10	Central Oklahoma	0.48	2.53	0.24	0.43	2.53	0.24	0.74	4.62	0.51	0.72	4.49	0.49
11	Chicago, IL	0.34	2.24	0.24	0.27	2.24	0.23	0.57	4.04	0.51	0.50	3.93	0.47
12	Cincinnati, OH	0.49	2.60	0.25	0.44	2.60	0.25	0.75	4.73	0.52	0.74	4.59	0.50
13	Cleveland, OH	0.49	2.60	0.25	0.44	2.60	0.25	0.75	4.73	0.52	0.74	4.59	0.50
14-15	Coachella Valley, CA	----	N/A	----									
16	Colorado Springs, CO	0.52	2.25	0.25	0.47	2.25	0.24	0.78	4.05	0.52	0.76	3.94	0.49
17-18	Connecticut Capital	0.31	2.33	0.23	0.23	2.38	0.21	0.57	4.00	0.51	0.50	3.89	0.47
19	Corpus Christi, TX	0.53	3.65	0.29	0.48	3.65	0.29	0.78	4.75	0.53	0.76	4.62	0.51
20	Dallas/Ft. Worth, TX	0.39	2.24	0.24	0.31	2.24	0.23	0.65	4.04	0.51	0.58	3.93	0.47
21	Delaware (entire state)	0.31	2.33	0.23	0.23	2.38	0.21	0.57	4.00	0.51	0.50	3.89	0.47
22	Denver, CO	0.52	2.25	0.25	0.47	2.25	0.24	0.78	4.05	0.52	0.76	3.94	0.49
23	Detroit/Toronto, MI-ON	0.49	2.60	0.25	0.44	2.60	0.25	0.75	4.73	0.52	0.74	4.59	0.50
24	Evansville, IN	0.46	3.65	0.29	0.41	3.65	0.29	0.68	4.75	0.52	0.67	4.62	0.50
25	Florida Gold Coast	0.41	2.53	0.24	0.31	2.53	0.24	0.66	4.62	0.51	0.57	4.49	0.49
26	Florida Space Coast	0.41	2.53	0.24	0.31	2.53	0.24	0.66	4.62	0.51	0.57	4.49	0.49
27	Genesee Region, NY	0.49	3.45	0.27	0.37	3.65	0.29	0.78	4.87	0.53	0.67	4.62	0.50
28	Hampton Roads., VA	0.34	2.24	0.24	0.27	2.24	0.23	0.57	4.04	0.51	0.50	3.93	0.47
29	Honolulu, HI	0.57	3.82	0.30	0.41	3.82	0.30	0.82	4.97	0.53	0.81	4.83	0.51
30	Houston, TX	0.39	2.24	0.24	0.31	2.24	0.23	0.65	4.04	0.51	0.58	3.93	0.47
31	Kansas City, MO	0.54	3.74	0.29	0.37	3.65	0.29	0.78	4.75	0.53	0.76	4.62	0.51
32-33	Lancaster, CA	----	N/A	----									
34	Las Vegas, NM	0.45	2.53	0.24	0.41	2.53	0.24	0.77	4.62	0.52	0.75	4.49	0.50
35-36	Long Beach, CA	----	N/A	----									
37	Long Island, NY	0.31	2.33	0.23	0.23	2.38	0.21	0.57	4.00	0.51	0.50	3.89	0.47
38-39	Los Angeles, CA	----	N/A	----									
40	Louisville, KY	0.34	2.24	0.24	0.27	2.24	0.23	0.57	4.04	0.51	0.50	3.93	0.47
41	Manhattan, KS	0.67	3.88	0.30	0.60	3.88	0.30	0.90	5.05	0.53	0.88	4.91	0.51
42	Missoula, MT	0.50	4.13	0.30	0.46	4.13	0.30	0.74	5.58	0.54	0.72	5.44	0.52
43	New London, CT	0.31	2.33	0.23	0.23	2.38	0.21	0.57	4.00	0.51	0.50	3.89	0.47
44	North Jersey, NJ	0.31	2.33	0.23	0.23	2.38	0.21	0.57	4.00	0.51	0.50	3.89	0.47
45	Norwich, CT	0.31	2.33	0.23	0.23	2.38	0.21	0.57	4.00	0.51	0.50	3.89	0.47
46	Omaha, NE	0.57	3.82	0.30	0.41	3.82	0.30	0.82	4.97	0.53	0.81	4.83	0.51
47	Paso Del Norte, TX	0.48	2.53	0.24	0.36	2.53	0.24	0.75	4.62	0.51	0.65	4.49	0.49
48	Peoria, IL	0.57	3.82	0.30	0.41	3.82	0.30	0.82	4.97	0.53	0.81	4.83	0.51
49	Philadelphia, PA	0.31	2.33	0.23	0.23	2.38	0.21	0.57	4.00	0.51	0.50	3.89	0.47
50	Phoenix, AZ	0.45	2.53	0.24	0.41	2.53	0.24	0.77	4.62	0.52	0.75	4.49	0.50
51	Pittsburgh, PA	0.46	2.71	0.24	0.31	2.69	0.22	0.75	4.68	0.52	0.64	4.44	0.49
52	Portland, ME	0.45	2.97	0.25	0.35	2.97	0.25	0.71	5.44	0.53	0.62	5.30	0.51
53-54	Portland, OR	0.45	2.97	0.25	0.35	2.97	0.25	0.71	5.44	0.53	0.62	5.30	0.51
55	Providence, RI	0.31	2.33	0.23	0.23	2.38	0.21	0.57	4.00	0.51	0.50	3.89	0.47
56	Puget Sound, WA	0.45	2.97	0.25	0.35	2.97	0.25	0.71	5.44	0.53	0.62	5.30	0.51
57	Red R. Valley, ND-MB	0.57	3.82	0.30	0.41	3.82	0.30	0.82	4.97	0.53	0.81	4.83	0.51
58	Rogue Valley, OR	0.50	4.13	0.30	0.46	4.13	0.30	0.74	5.58	0.54	0.72	5.44	0.52
59-60	Sacramento, CA	----	N/A	----									
61	St. Louis, MO	0.34	2.24	0.24	0.27	2.24	0.23	0.57	4.04	0.51	0.50	3.93	0.47
62	Salt Lake City, UT	0.48	2.53	0.24	0.43	2.53	0.24	0.77	4.62	0.51	0.66	3.33	0.37
63-64	San Diego, CA	----	N/A	----									
65-66	San Francisco Bay, CA	----	N/A	----									
67-68	San Joaquin, CA	----	N/A	----									
69	SCAG (CA)	----	N/A	----									
70	South Shore, IL	0.34	2.24	0.24	0.27	2.24	0.23	0.57	4.04	0.51	0.50	3.93	0.47
71	Southwestern CT	0.31	2.33	0.23	0.23	2.38	0.21	0.57	4.00	0.51	0.50	3.89	0.47
72	Southwest Kansas	0.67	3.88	0.30	0.60	3.88	0.30	0.90	5.05	0.53	0.88	4.91	0.51
73	Tucson, AZ	0.45	2.53	0.24	0.41	2.53	0.24	0.77	4.62	0.52	0.75	4.49	0.50
74	Tulsa, OK	0.48	2.53	0.24	0.43	2.53	0.24	0.74	4.62	0.51	0.72	4.49	0.49
75	Washington, DC	0.31	2.33	0.23	0.23	2.38	0.21	0.57	4.00	0.51	0.50	3.89	0.47
76	Waterbury, CT	0.31	2.33	0.23	0.23	2.38	0.21	0.57	4.00	0.51	0.50	3.89	0.47
77	Weld-Larimer-RMNP, CO	0.52	2.25	0.25	0.47	2.25	0.24	0.78	4.05	0.52	0.76	3.94	0.49
78	Western NY	0.49	3.45	0.27	0.37	3.65	0.29	0.78	4.87	0.53	0.67	4.62	0.50
79	W. Virginia (entire state)	0.46	3.65	0.29	0.41	3.65	0.29	0.68	4.75	0.52	0.67	4.62	0.50
80	White Plains, NY	0.31	2.33	0.23	0.23	2.38	0.21	0.57	4.00	0.51	0.50	3.89	0.47
81	Wisconsin SE area	0.32	2.62	0.25	0.27	2.62	0.23	0.55	4.76	0.53	0.48	4.64	0.48

Table 1 (cont.)

Clean City	1998/99 LDGV Bag 1 (g/mi)			1999/00 LDGV Bag 1 (g/mi)			1998/99 LDT2 Bag 1 (g/mi)			1999/00 LDT2 Bag 1 (g/mi)			Control Programs in Effect Through 2004	
	NMHC	CO	NOx											
Albuquerque, NM	1.06	6.97	0.40	0.95	6.97	0.40	1.61	12.26	0.87	1.49	11.90	0.84	I/M; ATP; hi-altitude	
Ann Arbor, MI	1.06	7.04	0.41	1.01	7.04	0.41	1.60	12.38	0.89	1.55	12.03	0.86	I/M; ATP; no RFG; 9.0 RVP	
Atlanta, GA	0.99	6.97	0.40	0.88	6.97	0.40	1.50	12.26	0.88	1.36	11.90	0.84	I/M; ATP; low RVP	
Austin, TX	1.05	6.97	0.40	1.00	6.97	0.40	1.58	12.26	0.87	1.54	11.90	0.84	I/M; ATP; ASTM B gas	
Baltimore, MD	0.73	6.38	0.39	0.55	6.46	0.35	1.32	10.61	0.87	1.20	10.32	0.80	I/M240; ATP; NLEV; RFG	
Boston, MA	0.73	6.38	0.39	0.55	6.46	0.35	1.32	10.61	0.87	1.20	10.32	0.80	I/M240; ATP; LEV; RFG	
Capital District, NY	1.02	9.27	0.44	0.71	7.85	0.39	1.63	12.62	0.90	1.49	12.14	0.85	LEV; no RFG	
Central Arkansas	1.35	10.30	0.48	1.00	6.97	0.40	1.61	12.49	0.88	1.57	12.14	0.85	ASTM B gas	
Central Indiana Alliance	0.85	6.15	0.40	0.76	6.15	0.38	1.32	10.73	0.88	1.20	10.43	0.80	I/M; ATP; RFG (eth.)	
Central NY	1.02	9.27	0.44	0.71	7.85	0.39	1.63	12.62	0.90	1.49	12.14	0.85	LEV; no RFG	
Central Oklahoma	1.05	6.97	0.40	1.00	6.97	0.40	1.58	12.26	0.87	1.54	11.90	0.84	I/M; ATP; ASTM B	
Chicago, IL	0.85	6.15	0.40	0.76	6.15	0.38	1.32	10.73	0.88	1.20	10.43	0.80	I/M240; ATP; RFG (eth.)	
Cincinnati, OH	1.06	7.04	0.41	1.01	7.04	0.41	1.60	12.38	0.89	1.55	12.03	0.86	I/M; ATP; no RFG; 9.0 RVP	
Cleveland, OH	1.06	7.04	0.41	1.01	7.04	0.41	1.60	12.38	0.89	1.55	12.03	0.86	I/M; ATP; no RFG; 9.0 RVP	
Coachella Valley, CA	----	N/A	----	-----										
Colorado Springs, CO	1.02	5.95	0.41	0.97	5.95	0.40	1.51	10.32	0.89	1.47	10.05	0.85	I/M; ATP; hi-altitude	
Connecticut Capital	0.73	6.38	0.39	0.55	6.46	0.35	1.32	10.61	0.87	1.20	10.32	0.80	I/M; ATP; NLEV; RFG	
Corpus Christi, TX	1.35	10.30	0.48	1.00	6.97	0.40	1.61	12.49	0.88	1.57	12.14	0.85	ASTM B gas	
Dallas/Ft. Worth, TX	0.91	6.15	0.40	0.80	6.15	0.38	1.39	10.73	0.87	1.28	10.43	0.80	I/M; ATP; RFG	
Delaware (entire state)	0.73	6.38	0.39	0.55	6.46	0.35	1.32	10.61	0.87	1.20	10.32	0.80	I/M; ATP; NLEV; RFG	
Denver, CO	1.02	5.95	0.41	0.97	5.95	0.40	1.51	10.32	0.89	1.47	10.05	0.85	I/M; ATP; hi-altitude	
Detroit/Toronto, MI-ON	1.06	7.04	0.41	1.01	7.04	0.41	1.60	12.38	0.89	1.55	12.03	0.86	I/M; ATP; no RFG; 9.0 RVP	
Evansville, IN	1.14	9.97	0.47	1.09	9.97	0.47	1.53	12.49	0.89	1.49	12.14	0.85	ASTM B gas	
Florida Gold Coast	0.99	6.97	0.40	0.88	6.97	0.40	1.50	12.26	0.88	1.36	11.90	0.84	I/M; ATP; low RVP	
Florida Space Coast	0.99	6.97	0.40	0.88	6.97	0.40	1.50	12.26	0.88	1.36	11.90	0.84	I/M; ATP; low RVP	
Genesee Region, NY	1.02	9.27	0.44	0.71	7.85	0.39	1.63	12.62	0.90	1.49	12.14	0.85	LEV; no RFG	
Hampton Roads., VA	0.85	6.15	0.40	0.76	6.15	0.38	1.32	10.73	0.88	1.20	10.43	0.80	I/M; ATP; RFG	
Honolulu, HI	1.22	10.07	0.48	1.05	9.97	0.47	1.63	12.62	0.90	1.43	12.14	0.85	ASTM C gas	
Houston, TX	0.91	6.15	0.40	0.80	6.15	0.38	1.39	10.73	0.87	1.28	10.43	0.80	I/M; ATP; RFG	
Kansas City, MO	1.14	9.97	0.47	1.09	9.97	0.47	1.53	12.49	0.89	1.49	12.14	0.85	ASTM B gas	
Lancaster, CA	----	N/A	----	-----										
Las Vegas, NM	1.03	6.97	0.40	0.98	6.97	0.40	1.62	12.26	0.87	1.57	11.90	0.84	I/M; ATP; Low RVP	
Long Beach, CA	----	N/A	----	-----										
Long Island, NY	0.73	6.38	0.39	0.55	6.46	0.35	1.32	10.61	0.87	1.20	10.32	0.80	I/M; ATP; LEV; RFG	
Los Angeles, CA	----	N/A	----	-----										
Louisville, KY	0.85	6.15	0.40	0.76	6.15	0.38	1.32	10.73	0.88	1.20	10.43	0.80	I/M; ATP; RFG	
Manhattan, KS	1.35	10.30	0.48	1.28	10.30	0.48	1.74	12.91	0.90	1.70	12.55	0.86	ASTM C gas	
Missoula, MT	1.28	12.28	0.49	1.18	12.28	0.49	1.72	16.66	0.92	1.59	16.31	0.89	ASTM C gas	
New London, CT	0.73	6.38	0.39	0.55	6.46	0.35	1.32	10.61	0.87	1.20	10.32	0.80	I/M; ATP; NLEV; RFG	
North Jersey, NJ	0.73	6.38	0.39	0.55	6.46	0.35	1.32	10.61	0.87	1.20	10.32	0.80	I/M; ATP; NLEV; RFG	
Norwich, CT	0.73	6.38	0.39	0.55	6.46	0.35	1.32	10.61	0.87	1.20	10.32	0.80	I/M; ATP; NLEV; RFG	
Omaha, NE	1.22	10.07	0.48	1.05	9.97	0.47	1.63	12.62	0.90	1.43	12.14	0.85	ASTM C gas	
Paso Del Norte, TX	1.05	6.97	0.40	0.95	6.97	0.40	1.59	12.26	0.87	1.47	11.90	0.84	I/M; ATP; ASTM A gas	
Peoria, IL	1.22	10.07	0.48	1.05	9.97	0.47	1.63	12.62	0.90	1.43	12.14	0.85	ASTM C gas	
Philadelphia, PA	0.73	6.38	0.39	0.55	6.46	0.35	1.32	10.61	0.87	1.20	10.32	0.80	I/M; ATP; NLEV; RFG	
Phoenix, AZ	1.03	6.97	0.40	0.98	6.97	0.40	1.62	12.26	0.87	1.57	11.90	0.84	I/M; ATP; ASTM A gas	
Pittsburgh, PA	0.93	7.30	0.39	0.76	7.39	0.37	1.59	12.24	0.89	1.54	11.89	0.85	I/M; ATP; NLEV	
Portland, ME	1.10	9.28	0.42	1.01	9.28	0.42	1.68	16.42	0.91	1.56	16.07	0.88	I/M; ATP; ASTM C gas	
Portland, OR	1.10	9.28	0.42	1.01	9.28	0.42	1.68	16.42	0.91	1.56	16.07	0.88	I/M; ATP; ASTM C gas	
Providence, RI	0.73	6.38	0.39	0.55	6.46	0.35	1.32	10.61	0.87	1.20	10.32	0.80	I/M; NLEV; RFG	
Puget Sound, WA	1.10	9.28	0.42	1.01	9.28	0.42	1.68	16.42	0.91	1.56	16.07	0.88	I/M; ATP; ASTM C gas	
Red R. Valley, ND-MB	1.22	10.07	0.48	1.05	9.97	0.47	1.63	12.62	0.90	1.43	12.14	0.85	ASTM C gas	
Rogue Valley, OR	1.28	12.28	0.49	1.18	12.28	0.49	1.72	16.66	0.92	1.59	16.31	0.89	ASTM C gas	
Sacramento, CA	----	N/A	----	-----										
St. Louis, MO	0.85	6.15	0.40	0.76	6.15	0.38	1.32	10.73	0.88	1.20	10.43	0.80	I/M240; ATP; RFG	
Salt Lake City, UT	1.06	6.97	0.40	0.95	6.97	0.40	1.61	12.26	0.87	1.49	11.90	0.84	I/M; ATP; hi-altitude	
San Diego, CA	----	N/A	----	-----										
San Francisco Bay, CA	----	N/A	----	-----										
San Joaquin, CA	----	N/A	----	-----										
SCAG (CA)	----	N/A	----	-----										
South Shore, IL	0.85	6.15	0.40	0.76	6.15	0.38	1.32	10.73	0.88	1.20	10.43	0.80	I/M240; ATP; RFG (eth.)	
Southwestern CT	0.73	6.38	0.39	0.55	6.46	0.35	1.32	10.61	0.87	1.20	10.32	0.80	I/M240; ATP; NLEV; RFG	
Southwest Kansas	1.35	10.30	0.48	1.28	10.30	0.48	1.74	12.91	0.90	1.70	12.55	0.86	ASTM C gas	
Tucson, AZ	1.03	6.97	0.40	0.98	6.97	0.40	1.62	12.26	0.87	1.57	11.90	0.84	I/M; ATP; ASTM A gas	
Tulsa, OK	1.05	6.97	0.40	1.00	6.97	0.40	1.58	12.26	0.87	1.54	11.90	0.84	I/M; ATP; ASTM B	
Washington, DC	0.73	6.38	0.39	0.55	6.46	0.35	1.32	10.61	0.87	1.20	10.32	0.80	I/M240; ATP; NLEV; RFG	
Waterbury, CT	0.73	6.38	0.39	0.55	6.46	0.35	1.32	10.61	0.87	1.20	10.32	0.80	I/M; ATP; NLEV; RFG	
Weld-Larimer-RMNP, CO	1.02	5.95	0.41	0.97	5.95	0.40	1.51	10.32	0.89	1.47	10.05	0.85	I/M; ATP; hi-altitude	
Western NY	1.02	9.27	0.44	0.71	7.85	0.39	1.63	12.62	0.90	1.49	12.14	0.85	LEV; no RFG	
W. Virginia (entire state)	1.14	9.97	0.47	1.09	9.97	0.47	1.53	12.49	0.89	1.49	12.14	0.85	ASTM B gas	
White Plains, NY	0.73	6.38	0.39	0.55	6.46	0.35	1.32	10.61	0.87	1.20	10.32	0.80	I/M; ATP; LEV; RFG	
Wisconsin SE area	0.91	8.20	0.41	0.83	8.20	0.39	1.42	14.37	0.90	1.29	14.09	0.83	I/M240; ATP; RFG (eth.)	

